

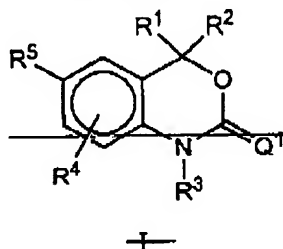
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## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

## Listing of Claims:

1 (Currently Amended). A method of inducing contraception comprising the step of delivering to a female of child-bearing age a composition comprising a compound of formula I or formula II, or a tautomer thereof, in a regimen which involves delivering a pharmaceutically effective amount of one or more of a selective estrogen receptor modulator to said female, wherein formula I or II is:



wherein:

~~R<sup>1</sup> and R<sup>2</sup> are independent substituents selected from the group consisting of H, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>2</sub> to C<sub>6</sub> alkenyl, C<sub>2</sub> to C<sub>8</sub> cycloalkyl, phenyl, and thiophene;~~

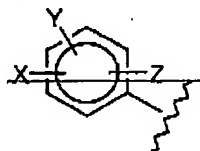
~~or R<sup>1</sup> and R<sup>2</sup> are fused to form a carbon-based 3 to 8 membered saturated spirocyclic ring;~~

~~R<sup>3</sup> is H;~~

~~R<sup>4</sup> H;~~

~~R<sup>5</sup> is selected from the group consisting of (i) and (ii);~~

~~(i) a substituted benzene ring having the structure:~~



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~~X is selected from the group consisting of halogen, CN, C<sub>1</sub> to C<sub>2</sub> alkyl, substituted C<sub>1</sub> to C<sub>2</sub> alkyl, C<sub>1</sub> to C<sub>2</sub> alkoxy, NO<sub>2</sub>, and C<sub>1</sub> to C<sub>3</sub> perfluoroalkyl;~~

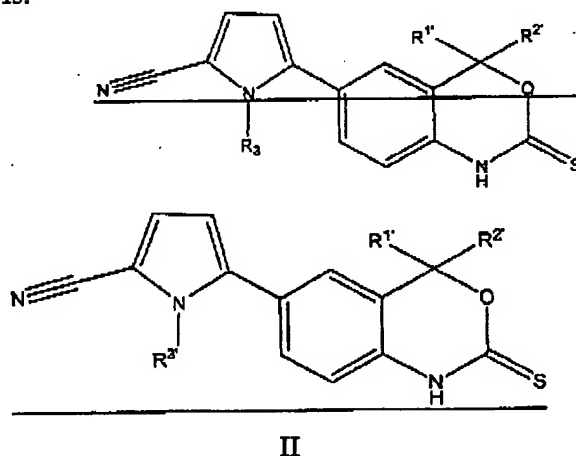
~~Y and Z are independent substituents selected from the group consisting of H, halogen, CN, NO<sub>2</sub>, C<sub>1</sub> to C<sub>3</sub> alkoxy, C<sub>1</sub> to C<sub>4</sub> alkyl, and substituted C<sub>1</sub> to C<sub>4</sub> alkyl; and~~

~~(ii) a five or six membered carbon based heterocyclic ring having in its backbone 1 heteroatom selected from the group consisting of O, S, and NR<sup>6</sup> and having one or two independent substituents selected from the group consisting of H, halogen, CN, C<sub>1</sub> to C<sub>4</sub> alkyl, and substituted C<sub>1</sub> to C<sub>4</sub> alkyl;~~

~~R<sup>6</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>2</sub> alkyl, and C<sub>1</sub> to C<sub>4</sub> CO<sub>2</sub>alkyl;~~

~~Q<sup>+</sup> is S;~~

and formula II is:



wherein:

R<sup>1'</sup> is selected from the group consisting of methyl, ethyl, and trifluoromethyl;

R<sup>2'</sup> is selected from the group consisting of methyl, ethyl, and trifluoromethyl; or

R<sup>1'</sup> and R<sup>2'</sup> are joined to form a spirocyclic ring containing 3 to 7 carbon atoms;

and

~~R<sup>3</sup> is selected from the group consisting of C<sub>1</sub> to C<sub>4</sub> alkyl;~~

or a pharmaceutically acceptable salt, tautomer, metabolite, or prodrug of formula I or formula II.

AHPWA25AUSA

2(Currently Amended). The method according to claim 1, wherein said compound of ~~formula I or formula II~~ and said selective estrogen receptor modulator are delivered in a single composition.

3(Currently Amended). The method according to claim 1, wherein said compound of ~~formula I or formula II~~ and said selective estrogen receptor modulator are delivered separately.

4(Original). The method according to claim 1, wherein said selective estrogen receptor modulator is selected from the group consisting of EM-800, EM-652, raloxifene hydrochloride, arzoxifene, lasofoxifene, droloxifene, idoxifene, levormeloxifene, centchroman, nafoxidene, tamoxifen citrate, 4-hydroxytamoxifen citrate, clomiphene citrate, toremifene citrate, pipendoxifene, and bazedoxifene.

5(Original). The method according to claim 1, wherein said compound is delivered at a daily dosage of about 0.1 to about 50 mg.

6(Original). The method according to claim 1, wherein said regimen comprises delivering said composition daily for 1 to about 21 days, wherein said regimen is a cycle which is repeated monthly.

7(Currently Amended). ~~The~~ The method according to claim 1, wherein said selective estrogen receptor modulator is delivered at a daily dosage of about 0.2 to about 100 mg.

8-24(Canceled).

25(Currently Amended). The method according to claim 1 wherein said compound of ~~formula I~~ is selected from the group consisting of 6-(3-Chlorophenyl)-4,4-

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~~dimethyl 1,4-dihydro-benzo[d][1,3]oxazin-2-thione, 4-(4,4-Dimethyl-2-thioxo-1,4-dihydro-2H-benzo[d][1,3]oxazin-6-yl)-thiophene-2-carbonitrile, 3-(4,4-Dimethyl-2-thioxo-1,4-dihydro-2H-benzo[d][1,3]oxazin-6-yl)-5-fluorobenzonitrile, 3-(4,4-Dimethyl-2-thioxo-1,4-dihydro-2H-benzo[d][1,3]oxazin-6-yl)-benzonitrile, 6-(3-fluorophenyl)-4-methyl-1,4-dihydro-2H-3,1-benzoxazine-2-thione, 5-(4,4-Dimethyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)-4-methylthiophene-2-carbonitrile, tert-Butyl-2-cyano-5-(4,4-dimethyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)-1H-pyrrole-1-carboxylate, 5-(4,4-Dimethyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)-1H-pyrrole-2-carbonitrile, [6-(4,4-dimethyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)-pyridin-2-yl]acetonitrile, 5-(4,4-Dimethyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)-1-methyl-1H-pyrrole-2-carbonitrile, 5-(4,4-dimethyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)-1H-pyrrole-2-carbothiamide, 5-(4,4-Dimethyl-2-thioxo-1,4-dihydro-2H-benzo[d][1,3]oxazin-6-yl)-thiophene-3-carbonitrile, and 5-(4,4-dimethyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)-1-ethyl-1H-pyrrole-2-carbonitrile, 4-(1,2-Dihydro-2-thioxospiro[4H-3,1-benzoxazin-4,1-cyclohexan]-6-yl)-2-thiophenecarbonitrile, 5-(4,4-Dimethyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)-2-fluorobenzonitrile, 6-(5-Bromopyridin-3-yl)-4,4-dimethyl-1,4-dihydro-2H-3,1-benzoxazine-2-thione, 6-(3-Chloro-5-fluorophenyl)-4,4-dimethyl-1,4-dihydro-2H-3,1-benzoxazine-2-thione, 6-(3-Bromo-5-methylphenyl)-4,4-dimethyl-1,4-dihydro-2H-3,1-benzoxazine-2-thione, 6-(3-Bromo-5-trifluoromethoxyphenyl)-4,4-dimethyl-1,4-dihydro-2H-3,1-benzoxazine-2-thione, 3-(1,2-Dihydro-2-thioxospiro[4H-3,1-benzoxazine-4,1-cyclohexan]-6-yl)-5-fluorobenzonitrile, 3-(4,4-Dimethyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)-5-methylbenzonitrile, 6-(3,5-Dichlorophenyl)-4,4-dimethyl-1,4-dihydro-2H-3,1-benzoxazine-2-thione, 5-(4,4-Dimethyl-1,2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)isophthalonitrile, 5-(4,4-Dimethyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)-2-furenitrile, 4,4-Diethyl-6-(3-nitrophenyl)-1,4-dihydro-2H-3,1-benzoxazine-2-thione, 6-(3-Chlorophenyl)-4-methyl-4-phenyl-1,4-dihydro-2H-3,1-benzoxazine-2-thione, 4-Allyl-6-(3-chlorophenyl)-4-methyl-1,4-dihydro-2H-3,1-benzoxazine-2-thione, 3-Chloro-5-(4,4-dimethyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)benzonitrile, 6-(3,5-~~

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~~Difluorophenyl) 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 6 (3 Fluoro 5-methoxyphenyl) 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 3 (4,4-Dimethyl 2-thioxo 1,4 dihydro 2H 3,1 benzoxazin 6-yl) 5-methoxybenzonitrile, 6 (3-Fluorophenyl) 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 6 [3-Fluoro 5-(trifluoromethyl)phenyl] 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 6 (2-Fluorophenyl) 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 6 (3,4-Difluorophenyl) 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 6 (4-Fluorophenyl) 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 3 (4,4 Dimethyl 2-thioxo 1,4 dihydro 2H 3,1 benzoxazin 6-yl) 4-fluorobenzonitrile, 6 (2,3-Difluorophenyl) 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 3 (8-Bromo 4,4 dimethyl 2-thioxo 1,4 dihydro 2H 3,1 benzoxazin 6-yl) 5-fluorobenzonitrile, 4,4-Dimethyl 6-(3-nitrophenyl) 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 6 (3-Chlorophenyl) 4,4 diethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 6 (3-Methoxyphenyl) 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 6 (2-Chlorophenyl) 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 4 Benzyl 6-(3-chlorophenyl) 4-methyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 6 (3-Bromo 5-fluorophenyl) 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 5 (4,4 Dimethyl 2-thioxo 1,4 dihydro 2H 3,1 benzoxazin 6-yl) thiophene 2-carbonitrile, 3 Fluoro 5-(8-fluoro 4,4 dimethyl 2-thioxo 1,4 dihydro 2H 3,1 benzoxazin 6-yl) benzonitrile, 3 (1,2-Dihydro 2-thioxospiro[4H 3,1 benzoxazine 4,1 cyclohexan] 6-yl) benzonitrile, 5 (1,2-Dihydro 2-thioxospiro[4H 3,1 benzoxazine 4,1 cyclohexan] 6-yl) 4-methyl 2-thiophenecarbonitrile, 5 (1,2-Dihydro 2-thioxospiro[4H 3,1 benzoxazine 4,1 cyclohexan] 6-yl) 2-thiophenecarbonitrile, 6 (3-Chloro 4-fluorophenyl) 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, 5 (4,4 Dimethyl 2-thioxo 1,4 dihydro 2H 3,1 benzoxazin 6-yl) 4-propylthiophene 2-carbonitrile, 4 (4,4 Dimethyl 2-thioxo 1,4 dihydro 2H 3,1 benzoxazin 6-yl) 2-furonitrile, 4 Butyl 5-(4,4 dimethyl 2-thioxo 1,4 dihydro 2H 3,1 benzoxazin 6-yl) thiophene 2-carbonitrile, 6 (3-Bromophenyl) 4,4 dimethyl 1,4 dihydro 2H 3,1 benzoxazine 2 thione, and 2 (4,4 Dimethyl 2-thioxo 1,4~~

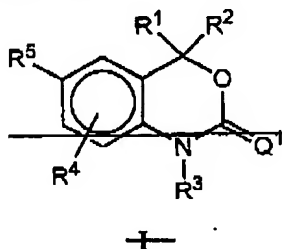
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~~dihydro-2H-3,1-benzoxazin-6-yl)thiophene-3-carbonitrile~~, or a pharmaceutically acceptable salt, tautomer, metabolite, or prodrug thereof.

26(Canceled).

27(Currently Amended). The method according to claim ~~414~~, wherein said compound of formula II is selected from the group consisting of: 5-(4-ethyl-4-methyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)-1-methyl-1H-pyrrole-2-carbonitrile, 5-(4,4-diethyl-2-thioxo-1,4-dihydro-2H-3,1-benzoxazin-6-yl)-1-methyl-1H-pyrrole-2-carbonitrile, 1-methyl-5-(2-thioxo-1,2-dihydrospiro[3,1-benzoxazine-4,1'-cyclobutan]-6-yl)-1H-pyrrole-2-carbonitrile, 1-methyl-5-(2-thioxo-1,2-dihydrospiro[3,1-benzoxazine-4,1'-cyclohexan]-6-yl)-1H-pyrrole-2-carbonitrile, 1-methyl-5-(2-thioxo-1,2-dihydrospiro[3,1-benzoxazine-4,1'-cyclopentan]-6-yl)-1H-pyrrole-2-carbonitrile, 1-methyl-5-[2-thioxo-4,4-bis(trifluoromethyl)-1,4-dihydro-2H-3,1-benzoxazine-6-yl]-1H-pyrrole-2-carbonitrile, and prodrugs, metabolites, and pharmaceutically acceptable salts thereof.

28(Currently Amended). A pharmaceutical kit useful for inducing contraception, said kit comprising a compound of ~~formula I or~~ formula II and at least one selective estrogen receptor modulator, wherein ~~formula I is~~:



wherein:

~~R<sup>1</sup> and R<sup>2</sup> are independent substituents selected from the group consisting of H,~~  
~~C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>2</sub> to C<sub>6</sub> alkenyl, C<sub>3</sub> to C<sub>8</sub> cycloalkyl, phenyl,~~  
~~and thiophene;~~

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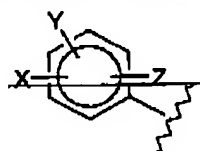
or  $R^1$  and  $R^2$  are fused to form a carbon based 3 to 8 membered saturated spirocyclic ring;

—  $R^3$  is H;

—  $R^4$  is H;

$R^5$  is selected from the group consisting of (i) and (ii):

(i) — a substituted benzene ring having the structure:



X is selected from the group consisting of halogen, CN,  $C_1$  to  $C_3$  alkyl, substituted  $C_1$  to  $C_3$  alkyl,  $C_1$  to  $C_3$  alkoxy,  $NO_2$ , and  $C_1$  to  $C_3$  perfluoroalkyl;

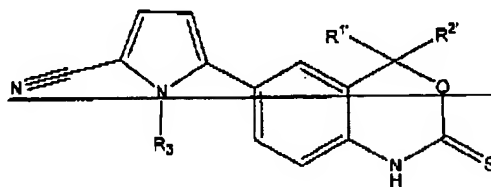
Y and Z are independent substituents selected from the group consisting of H, halogen, CN,  $NO_2$ ,  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_4$  alkyl, and substituted  $C_1$  to  $C_4$  alkyl; and

(ii) — a five or six membered carbon based heterocyclic ring having in its backbone 1 heteroatom selected from the group consisting of O, S, and  $NR^6$  and having one or two independent substituents selected from the group consisting of H, halogen, CN,  $C_1$  to  $C_4$  alkyl, and substituted  $C_1$  to  $C_4$  alkyl;

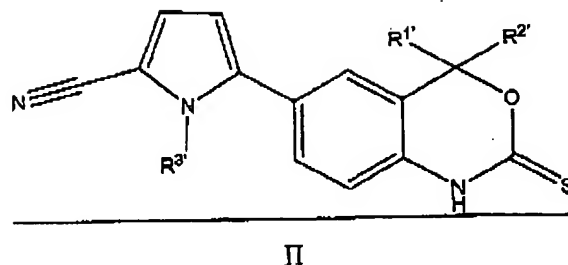
$R^6$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, and  $C_1$  to  $C_4$   $CO_2$  alkyl;

—  $Q^1$  is S;

and formula II is:



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wherein:

$R^{1'}$  is selected from the group consisting of methyl, ethyl, and trifluoromethyl;

$R^{2'}$  is selected from the group consisting of methyl, ethyl, and trifluoromethyl; or

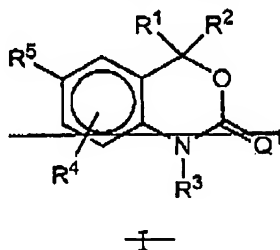
$R^{1'}$  and  $R^{2'}$  are joined to form a spirocyclic ring containing 3 to 7 carbon atoms;

and

$R^{3'}$  is  $C_1$  to  $C_4$  alkyl;

and or a pharmaceutically acceptable salt, tautomer, metabolite, or prodrug thereof.

29(Currently Amended). A contraceptive regimen comprising the periodic and discontinuous delivery of a compound of formula I ~~or~~ formula II, ~~or a tautomer thereof~~, and a pharmaceutically effective amount of one or more of a selective estrogen receptor modulator to a female of child-bearing age, wherein formula I is:



wherein:

$R^1$  and  $R^2$  are independent substituents selected from the group consisting of H,  $C_1$  to  $C_6$  alkyl, substituted  $C_1$  to  $C_6$  alkyl,  $C_2$  to  $C_6$  alkenyl, substituted  $C_2$  to  $C_6$  alkenyl,  $C_2$  to  $C_6$  alkynyl, substituted  $C_2$  to  $C_6$  alkynyl,  $C_3$  to  $C_8$  cycloalkyl, substituted  $C_3$  to  $C_8$  cycloalkyl, carbon based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon based heterocyclic ring having in its backbone 1 to 3 heteroatoms,  $COR^A$ , and  $NR^B COR^A$ ;



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or  $R^1$  and  $R^2$  are fused to form a ring selected from the group consisting of a), b) and c), wherein said ring is optionally substituted by from 1 to 3 substituents selected from the group consisting of H and  $C_1$  to  $C_3$  alkyl;

a) — a carbon-based 3 to 8 membered saturated spirocyclic ring;

b) — a carbon-based 3 to 8 membered spirocyclic ring having one or more carbon-carbon double bonds; and

c) — a 3 to 8 membered spirocyclic ring having in its backbone one to three heteroatoms selected from the group consisting of O, S and N;

$R^A$  is selected from the group consisting of H,  $C_1$  to  $C_2$  alkyl, substituted  $C_1$  to  $C_3$  alkyl, aryl, substituted aryl,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy, amino,  $C_1$  to  $C_3$  aminoalkyl, and substituted  $C_1$  to  $C_3$  aminoalkyl;

$R^B$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, and substituted  $C_1$  to  $C_3$  alkyl;

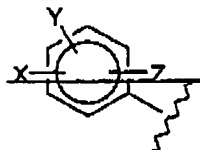
$R^3$  is selected from the group consisting of H, OH,  $NH_2$ ,  $C_1$  to  $C_6$  alkyl, substituted  $C_1$  to  $C_6$  alkyl,  $C_2$  to  $C_6$  alkenyl, substituted  $C_2$  to  $C_6$  alkenyl, alkynyl, substituted alkynyl, and  $COR^C$ ;

$R^6$  is selected from the group consisting of H,  $C_1$  to  $C_4$  alkyl, substituted  $C_1$  to  $C_4$  alkyl, aryl, substituted aryl,  $C_1$  to  $C_4$  alkoxy, substituted  $C_1$  to  $C_4$  alkoxy,  $C_1$  to  $C_4$  aminoalkyl, and substituted  $C_1$  to  $C_4$  aminoalkyl;

$R^4$  is selected from the group consisting of H, halogen, CN,  $NO_2$ ,  $C_1$  to  $C_6$  alkyl, substituted  $C_1$  to  $C_6$  alkyl,  $C_1$  to  $C_6$  alkoxy, substituted  $C_1$  to  $C_6$  alkoxy,  $C_1$  to  $C_6$  aminoalkyl, and substituted  $C_1$  to  $C_6$  aminoalkyl;

$R^5$  is selected from the group consisting of (i) and (ii):

(i) — a substituted benzene ring having the structure:



X is selected from the group consisting of halogen, CN,  $C_1$  to  $C_3$  alkyl, substituted  $C_1$  to  $C_3$  alkyl,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_3$

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thioalkyl, substituted  $C_1$  to  $C_3$  thioalkyl,  $C_1$  to  $C_3$  aminoalkyl, substituted  $C_1$  to  $C_3$  aminoalkyl,  $NO_2$ ,  $C_1$  to  $C_3$  perfluoroalkyl, substituted  $C_1$  to  $C_3$  perfluoroalkyl, 5 or 6 membered carbon based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted 5 or 6 membered carbon based heterocyclic ring having in its backbone 1 to 3 heteroatoms,  $COR^D$ ,  $OCOR^D$ , and  $NR^E COR^D$ ;

$R^D$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, substituted  $C_1$  to  $C_3$  alkyl, aryl, substituted aryl,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_3$  aminoalkyl, and substituted  $C_1$  to  $C_3$  aminoalkyl;

—  $R^E$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, and substituted  $C_1$  to  $C_3$  alkyl;

Y and Z are independent substituents selected from the group consisting of H, halogen, CN,  $NO_2$ ,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_4$  alkyl, substituted  $C_1$  to  $C_4$  alkyl,  $C_1$  to  $C_3$  thioalkyl, and substituted  $C_1$  to  $C_3$  thioalkyl; and

(ii) — a five or six membered carbon based heterocyclic ring having in its backbone 1, 2, or 3 heteroatoms selected from the group consisting of O, S, SO,  $SO_2$ , and  $NR^F$  and having one or two independent substituents selected from the group consisting of H, halogen, CN,  $NO_2$ ,  $C_1$  to  $C_4$  alkyl, substituted  $C_1$  to  $C_4$  alkyl,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_3$  aminoalkyl, substituted  $C_1$  to  $C_3$  aminoalkyl,  $C_1$  to  $C_3$  perfluoroalkyl, substituted  $C_1$  to  $C_3$  perfluoroalkyl, 5 or 6 membered carbon based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted 5 or 6 membered carbon based heterocyclic ring having in its backbone 1 to 3 heteroatoms,  $C_1$  to  $C_3$  thioalkyl, substituted  $C_1$  to  $C_3$  thioalkyl,  $COR^F$ , and  $NR^G COR^F$ ;

$R^F$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, substituted  $C_1$  to  $C_3$  alkyl, aryl, substituted aryl,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_3$  aminoalkyl, and substituted  $C_1$  to  $C_3$  aminoalkyl;

—  $R^G$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, and substituted  $C_1$  to  $C_3$  alkyl;

$R^6$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, and  $C_1$  to  $C_4$   $CO_2$ alkyl;

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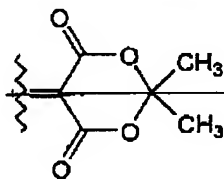
~~Q<sup>1</sup> is selected from the group consisting of S, NR<sup>7</sup>, and CR<sup>8</sup>R<sup>9</sup>;~~

~~R<sup>7</sup> is selected from the group consisting of CN, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>3</sub> to C<sub>8</sub> cycloalkyl, substituted C<sub>3</sub> to C<sub>8</sub> cycloalkyl, aryl, substituted aryl, carbon based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon based heterocyclic ring having in its backbone 1 to 3 heteroatoms, SO<sub>2</sub>CF<sub>3</sub>, OR<sup>11</sup>, and NR<sup>11</sup>R<sup>12</sup>;~~

~~R<sup>8</sup> and R<sup>9</sup> are independent substituents selected from the group consisting of H, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>3</sub> to C<sub>8</sub> cycloalkyl, substituted C<sub>3</sub> to C<sub>8</sub> cycloalkyl, aryl, substituted aryl, carbon based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon based heterocyclic ring having in its backbone 1 to 3 heteroatoms, NO<sub>2</sub>, CN, and CO<sub>2</sub>R<sup>10</sup>;~~

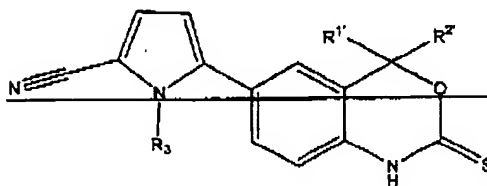
~~R<sup>10</sup> is selected from the group consisting of C<sub>1</sub> to C<sub>2</sub> alkyl and substituted C<sub>1</sub> to C<sub>3</sub> alkyl;~~

~~or CR<sup>8</sup>R<sup>9</sup> comprise a six membered ring having the structure:~~

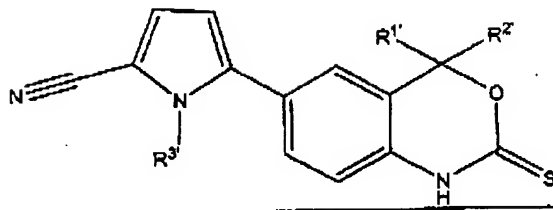


~~R<sup>11</sup> and R<sup>12</sup> are independently selected from the group consisting of H, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, aryl, substituted aryl, carbon based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon based heterocyclic ring having in its backbone 1 to 3 heteroatoms, acyl, substituted acyl, sulfonyl, and substituted sulfonyl;~~

and formula II is:



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II

wherein:

R¹ is selected from the group consisting of methyl, ethyl, and trifluoromethyl;

R² is selected from the group consisting of methyl, ethyl, and trifluoromethyl; or

R¹ and R² are joined to form a spirocyclic ring containing 3 to 7 carbon atoms;

and

R³ is selected from the group consisting of C₁ to C₄ alkyl;

or a pharmaceutically acceptable salt, tautomer, metabolite, or prodrug of ~~formula I or~~  
formula II

30(Currently Amended). The regimen according to claim 29, comprising delivering said compound of ~~formula I or~~ formula II and said selective estrogen receptor modulator separately.

31(Currently Amended). The regimen according to claim 29, comprising delivering said compound of ~~formula I or~~ formula II and said selective estrogen receptor modulator in a single composition.

32(Previously Presented). The regimen according to claim 29, further comprising delivering a placebo.

33(Previously Presented). The regimen according to claim 29 which comprises 28 days.

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34(Currently Amended). The regimen according to claim 33, wherein said regimen comprises delivering said compound of ~~formula I or~~ formula II and said selective estrogen receptor modulator for 14 to 24 days.

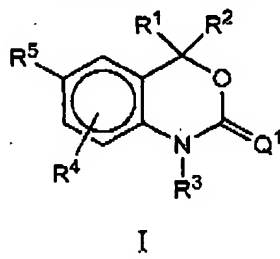
35(Currently Amended). The regimen according to claim 33, wherein said regimen comprises:

- (a) delivering said compound of ~~formula I or~~ formula II and said selective estrogen receptor modulator for the first 14 to 24 days of said 28 day regimen; and
- (b) delivering said selective estrogen receptor modulator alone for 1 to 11 days beginning on any day between days 14 and 24.

36(Currently Amended). The regimen according to claim 35, wherein said regimen further comprises:

- (c) delivering a placebo for 1 to 10 days during the period of time where said compound of formula II and said selective estrogen receptor modulator are not delivered.

37(Currently Amended). The A contraceptive regimen comprising the periodic and discontinuous delivery of a compound of formula I or II and a pharmaceutically effective amount of one or more of a selective estrogen receptor modulator to a female of child-bearing age, wherein formula I is: according to claim 33



wherein:

R<sup>1</sup> and R<sup>2</sup> are independent substituents selected from the group consisting of H, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>2</sub> to C<sub>6</sub> alkenyl, substituted C<sub>2</sub> to C<sub>6</sub> alkenyl, C<sub>2</sub> to C<sub>6</sub> alkynyl, substituted C<sub>2</sub> to C<sub>6</sub> alkynyl, C<sub>3</sub> to C<sub>8</sub> cycloalkyl, substituted C<sub>3</sub> to C<sub>8</sub>

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cycloalkyl, carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, COR<sup>A</sup>, and NR<sup>B</sup>COR<sup>A</sup>:

or R<sup>1</sup> and R<sup>2</sup> are fused to form a ring selected from the group consisting of a), b) and c), wherein said ring is optionally substituted by from 1 to 3 substituents selected from the group consisting of H and C<sub>1</sub> to C<sub>3</sub> alkyl;

a) a carbon-based 3 to 8 membered saturated spirocyclic ring;

b) a carbon-based 3 to 8 membered spirocyclic ring having one or more carbon-carbon double bonds; and

c) a 3 to 8 membered spirocyclic ring having in its backbone one to three heteroatoms selected from the group consisting of O, S and N;

R<sup>A</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, substituted C<sub>1</sub> to C<sub>3</sub> alkyl, aryl, substituted aryl, C<sub>1</sub> to C<sub>3</sub> alkoxy, substituted C<sub>1</sub> to C<sub>3</sub> alkoxy, amino, C<sub>1</sub> to C<sub>3</sub> aminoalkyl, and substituted C<sub>1</sub> to C<sub>3</sub> aminoalkyl;

R<sup>B</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, and substituted C<sub>1</sub> to C<sub>3</sub> alkyl;

R<sup>3</sup> is selected from the group consisting of H, OH, NH<sub>2</sub>, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>3</sub> to C<sub>6</sub> alkenyl, substituted C<sub>3</sub> to C<sub>6</sub> alkenyl, alkynyl, substituted alkynyl, and COR<sup>C</sup>;

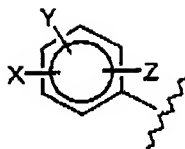
R<sup>C</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>4</sub> alkyl, substituted C<sub>1</sub> to C<sub>4</sub> alkyl, aryl, substituted aryl, C<sub>1</sub> to C<sub>4</sub> alkoxy, substituted C<sub>1</sub> to C<sub>4</sub> alkoxy, C<sub>1</sub> to C<sub>4</sub> aminoalkyl, and substituted C<sub>1</sub> to C<sub>4</sub> aminoalkyl;

R<sup>4</sup> is selected from the group consisting of H, halogen, CN, NO<sub>2</sub>, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>1</sub> to C<sub>6</sub> alkoxy, substituted C<sub>1</sub> to C<sub>6</sub> alkoxy, C<sub>1</sub> to C<sub>6</sub> aminoalkyl, and substituted C<sub>1</sub> to C<sub>6</sub> aminoalkyl;

R<sup>5</sup> is selected from the group consisting of (i) and (ii):

(i) a substituted benzene ring having the structure:

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X is selected from the group consisting of halogen, CN, C<sub>1</sub> to C<sub>3</sub> alkyl, substituted C<sub>1</sub> to C<sub>3</sub> alkyl, C<sub>1</sub> to C<sub>3</sub> alkoxy, substituted C<sub>1</sub> to C<sub>3</sub> alkoxy, C<sub>1</sub> to C<sub>3</sub> thioalkyl, substituted C<sub>1</sub> to C<sub>3</sub> thioalkyl, C<sub>1</sub> to C<sub>3</sub> aminoalkyl, substituted C<sub>1</sub> to C<sub>3</sub> aminoalkyl, NO<sub>2</sub>, C<sub>1</sub> to C<sub>3</sub> perfluoroalkyl, substituted C<sub>1</sub> to C<sub>3</sub> perfluoroalkyl, 5 or 6 membered carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted 5 or 6 membered carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, COR<sup>D</sup>, OCOR<sup>D</sup>, and NR<sup>E</sup>COR<sup>D</sup>.

R<sup>D</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, substituted C<sub>1</sub> to C<sub>3</sub> alkyl, aryl, substituted aryl, C<sub>1</sub> to C<sub>3</sub> alkoxy, substituted C<sub>1</sub> to C<sub>3</sub> alkoxy, C<sub>1</sub> to C<sub>3</sub> aminoalkyl, and substituted C<sub>1</sub> to C<sub>3</sub> aminoalkyl;

R<sup>E</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, and substituted C<sub>1</sub> to C<sub>3</sub> alkyl;

Y and Z are independent substituents selected from the group consisting of H, halogen, CN, NO<sub>2</sub>, C<sub>1</sub> to C<sub>3</sub> alkoxy, substituted C<sub>1</sub> to C<sub>3</sub> alkoxy, C<sub>1</sub> to C<sub>4</sub> alkyl, substituted C<sub>1</sub> to C<sub>4</sub> alkyl, C<sub>1</sub> to C<sub>3</sub> thioalkyl, and substituted C<sub>1</sub> to C<sub>3</sub> thioalkyl; and

(ii) a five or six membered carbon-based heterocyclic ring having in its backbone 1, 2, or 3 heteroatoms selected from the group consisting of O, S, SO, SO<sub>2</sub>, and NR<sup>F</sup> and having one or two independent substituents selected from the group consisting of H, halogen, CN, NO<sub>2</sub>, C<sub>1</sub> to C<sub>4</sub> alkyl, substituted C<sub>1</sub> to C<sub>4</sub> alkyl, C<sub>1</sub> to C<sub>3</sub> alkoxy, substituted C<sub>1</sub> to C<sub>3</sub> alkoxy, C<sub>1</sub> to C<sub>3</sub> aminoalkyl, substituted C<sub>1</sub> to C<sub>3</sub> aminoalkyl, C<sub>1</sub> to C<sub>3</sub> perfluoroalkyl, substituted C<sub>1</sub> to C<sub>3</sub> perfluoroalkyl, 5 or 6 membered carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted 5 or 6 membered carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, C<sub>1</sub> to C<sub>3</sub> thioalkyl, substituted C<sub>1</sub> to C<sub>3</sub> thioalkyl, COR<sup>F</sup>, and NR<sup>G</sup>COR<sup>F</sup>;

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$R^F$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, substituted  $C_1$  to  $C_3$  alkyl, aryl, substituted aryl,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_3$  aminoalkyl, and substituted  $C_1$  to  $C_3$  aminoalkyl;

$R^G$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, and substituted  $C_1$  to  $C_3$  alkyl;

$R^6$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, and  $C_1$  to  $C_4$   $CO_2$ alkyl;

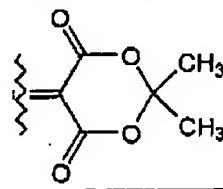
$O^1$  is selected from the group consisting of S,  $NR^7$ , and  $CR^8R^9$ ;

$R^7$  is selected from the group consisting of CN,  $C_1$  to  $C_6$  alkyl, substituted  $C_1$  to  $C_6$  alkyl,  $C_3$  to  $C_8$  cycloalkyl, substituted  $C_3$  to  $C_8$  cycloalkyl, aryl, substituted aryl, carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms,  $SO_2CF_3$ ,  $OR^{11}$ , and  $NR^{11}R^{12}$ ;

$R^8$  and  $R^9$  are independent substituents selected from the group consisting of H,  $C_1$  to  $C_6$  alkyl, substituted  $C_1$  to  $C_6$  alkyl,  $C_3$  to  $C_8$  cycloalkyl, substituted  $C_3$  to  $C_8$  cycloalkyl, aryl, substituted aryl, carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms,  $NO_2$ , CN, and  $CO_2R^{10}$ ;

$R^{10}$  is selected from the group consisting of  $C_1$  to  $C_3$  alkyl and substituted  $C_1$  to  $C_3$  alkyl;

or  $CR^8R^9$  comprise a six membered ring having the structure:



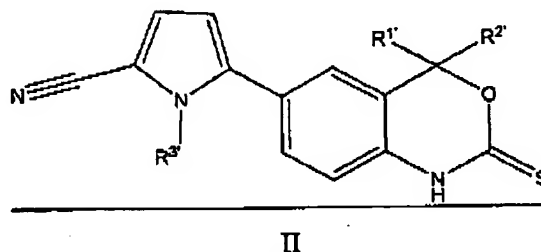
$R^{11}$  and  $R^{12}$  are independently selected from the group consisting of H,  $C_1$  to  $C_6$  alkyl, substituted  $C_1$  to  $C_6$  alkyl, aryl, substituted aryl, carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon-based heterocyclic ring



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having in its backbone 1 to 3 heteroatoms, acyl, substituted acyl, sulfonyl, and substituted sulfonyl;

and formula II is:



wherein:

R<sup>1'</sup> is selected from the group consisting of methyl, ethyl, and trifluoromethyl;

R<sup>2'</sup> is selected from the group consisting of methyl, ethyl, and trifluoromethyl; or

R<sup>1'</sup> and R<sup>2'</sup> are joined to form a spirocyclic ring containing 3 to 7 carbon atoms;

and

R<sup>3'</sup> is C<sub>1</sub> to C<sub>4</sub> alkyl;

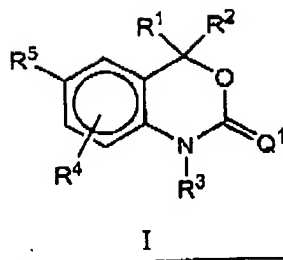
or a pharmaceutically acceptable salt, tautomer, metabolite, or prodrug of formula I or formula II, wherein said regimen comprises:

(a) delivering said compound of formula I or formula II for the first 18 to 21 days of a 28 day regimen; and

(b) delivering said selective estrogen receptor modulator alone for 1 to 7 days following delivery of (a).

38(Currently Amended). The A contraceptive regimen comprising the periodic and discontinuous delivery of a compound of formula I or II and a pharmaceutically effective amount of one or more of a selective estrogen receptor modulator to a female of child-bearing age, wherein formula I is: according to claim 33

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wherein:

R<sup>1</sup> and R<sup>2</sup> are independent substituents selected from the group consisting of H, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>2</sub> to C<sub>6</sub> alkenyl, substituted C<sub>2</sub> to C<sub>6</sub> alkenyl, C<sub>2</sub> to C<sub>6</sub> alkynyl, substituted C<sub>2</sub> to C<sub>6</sub> alkynyl, C<sub>3</sub> to C<sub>8</sub> cycloalkyl, substituted C<sub>3</sub> to C<sub>8</sub> cycloalkyl, carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, COR<sup>A</sup>, and NR<sup>B</sup>COR<sup>A</sup>;

or R<sup>1</sup> and R<sup>2</sup> are fused to form a ring selected from the group consisting of a), b) and c), wherein said ring is optionally substituted by from 1 to 3 substituents selected from the group consisting of H and C<sub>1</sub> to C<sub>3</sub> alkyl;

a) a carbon-based 3 to 8 membered saturated spirocyclic ring;

b) a carbon-based 3 to 8 membered spirocyclic ring having one or more carbon-carbon double bonds; and

c) a 3 to 8 membered spirocyclic ring having in its backbone one to three heteroatoms selected from the group consisting of O, S and N;

R<sup>A</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, substituted C<sub>1</sub> to C<sub>3</sub> alkyl, aryl, substituted aryl, C<sub>1</sub> to C<sub>3</sub> alkoxy, substituted C<sub>1</sub> to C<sub>3</sub> alkoxy, amino, C<sub>1</sub> to C<sub>3</sub> aminoalkyl, and substituted C<sub>1</sub> to C<sub>3</sub> aminoalkyl;

R<sup>B</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, and substituted C<sub>1</sub> to C<sub>3</sub> alkyl;

R<sup>3</sup> is selected from the group consisting of H, OH, NH<sub>2</sub>, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>3</sub> to C<sub>6</sub> alkenyl, substituted C<sub>3</sub> to C<sub>6</sub> alkenyl, alkynyl, substituted alkynyl, and COR<sup>C</sup>;

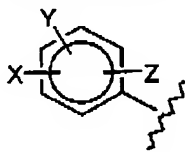
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$R^C$  is selected from the group consisting of H,  $C_1$  to  $C_4$  alkyl, substituted  $C_1$  to  $C_4$  alkyl, aryl, substituted aryl,  $C_1$  to  $C_4$  alkoxy, substituted  $C_1$  to  $C_4$  alkoxy,  $C_1$  to  $C_4$  aminoalkyl, and substituted  $C_1$  to  $C_4$  aminoalkyl;

$R^4$  is selected from the group consisting of H, halogen, CN,  $NO_2$ ,  $C_1$  to  $C_6$  alkyl, substituted  $C_1$  to  $C_6$  alkyl,  $C_1$  to  $C_6$  alkoxy, substituted  $C_1$  to  $C_6$  alkoxy,  $C_1$  to  $C_6$  aminoalkyl, and substituted  $C_1$  to  $C_6$  aminoalkyl;

$R^5$  is selected from the group consisting of (i) and (ii):

(i) a substituted benzene ring having the structure:



X is selected from the group consisting of halogen, CN,  $C_1$  to  $C_3$  alkyl, substituted  $C_1$  to  $C_3$  alkyl,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_3$  thioalkyl, substituted  $C_1$  to  $C_3$  thioalkyl,  $C_1$  to  $C_3$  aminoalkyl, substituted  $C_1$  to  $C_3$  aminoalkyl,  $NO_2$ ,  $C_1$  to  $C_3$  perfluoroalkyl, substituted  $C_1$  to  $C_3$  perfluoroalkyl, 5 or 6 membered carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted 5 or 6 membered carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms,  $COR^D$ ,  $OCOR^D$ , and  $NR^E COR^D$ ;

$R^D$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, substituted  $C_1$  to  $C_3$  alkyl, aryl, substituted aryl,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_3$  aminoalkyl, and substituted  $C_1$  to  $C_3$  aminoalkyl;

$R^E$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, and substituted  $C_1$  to  $C_3$  alkyl;

Y and Z are independent substituents selected from the group consisting of H, halogen, CN,  $NO_2$ ,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_4$  alkyl, substituted  $C_1$  to  $C_4$  alkyl,  $C_1$  to  $C_3$  thioalkyl, and substituted  $C_1$  to  $C_3$  thioalkyl; and

(ii) a five or six membered carbon-based heterocyclic ring having in its backbone 1, 2, or 3 heteroatoms selected from the group consisting of O, S, SO,  $SO_2$ , and  $NR^6$  and having one or two independent substituents selected from the group consisting

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of H, halogen, CN, NO<sub>2</sub>, C<sub>1</sub> to C<sub>4</sub> alkyl, substituted C<sub>1</sub> to C<sub>4</sub> alkyl, C<sub>1</sub> to C<sub>3</sub> alkoxy, substituted C<sub>1</sub> to C<sub>3</sub> alkoxy, C<sub>1</sub> to C<sub>3</sub> aminoalkyl, substituted C<sub>1</sub> to C<sub>3</sub> aminoalkyl, C<sub>1</sub> to C<sub>3</sub> perfluoroalkyl, substituted C<sub>1</sub> to C<sub>3</sub> perfluoroalkyl, 5 or 6 membered carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted 5 or 6 membered carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, C<sub>1</sub> to C<sub>3</sub> thioalkyl, substituted C<sub>1</sub> to C<sub>3</sub> thioalkyl, COR<sup>F</sup>, and NR<sup>G</sup>COR<sup>F</sup>.

R<sup>F</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, substituted C<sub>1</sub> to C<sub>3</sub> alkyl, aryl, substituted aryl, C<sub>1</sub> to C<sub>3</sub> alkoxy, substituted C<sub>1</sub> to C<sub>3</sub> alkoxy, C<sub>1</sub> to C<sub>3</sub> aminoalkyl, and substituted C<sub>1</sub> to C<sub>3</sub> aminoalkyl;

R<sup>G</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, and substituted C<sub>1</sub> to C<sub>3</sub> alkyl;

R<sup>6</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, and C<sub>1</sub> to C<sub>4</sub> CO<sub>2</sub>alkyl;

Q<sup>1</sup> is selected from the group consisting of S, NR<sup>7</sup>, and CR<sup>8</sup>R<sup>9</sup>;

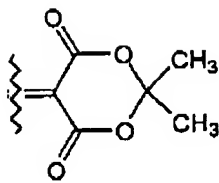
R<sup>7</sup> is selected from the group consisting of CN, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>3</sub> to C<sub>8</sub> cycloalkyl, substituted C<sub>3</sub> to C<sub>8</sub> cycloalkyl, aryl, substituted aryl, carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, SO<sub>2</sub>CF<sub>3</sub>, OR<sup>11</sup>, and NR<sup>11</sup>R<sup>12</sup>;

R<sup>8</sup> and R<sup>9</sup> are independent substituents selected from the group consisting of H, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>3</sub> to C<sub>8</sub> cycloalkyl, substituted C<sub>3</sub> to C<sub>8</sub> cycloalkyl, aryl, substituted aryl, carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, NO<sub>2</sub>, CN, and CO<sub>2</sub>R<sup>10</sup>;

R<sup>10</sup> is selected from the group consisting of C<sub>1</sub> to C<sub>3</sub> alkyl and substituted C<sub>1</sub> to C<sub>3</sub> alkyl;

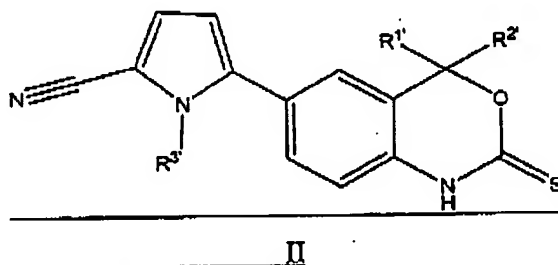
or CR<sup>8</sup>R<sup>9</sup> comprise a six membered ring having the structure:

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$R^{11}$  and  $R^{12}$  are independently selected from the group consisting of H,  $C_1$  to  $C_6$  alkyl, substituted  $C_1$  to  $C_6$  alkyl, aryl, substituted aryl, carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, acyl, substituted acyl, sulfonyl, and substituted sulfonyl;

and formula II is:



whercin:

$R^{1'}$  is selected from the group consisting of methyl, ethyl, and trifluoromethyl;

$R^{2'}$  is selected from the group consisting of methyl, ethyl, and trifluoromethyl; or

$R^{1'}$  and  $R^{2'}$  are joined to form a spirocyclic ring containing 3 to 7 carbon atoms;

and

$R^{3'}$  is  $C_1$  to  $C_4$  alkyl;

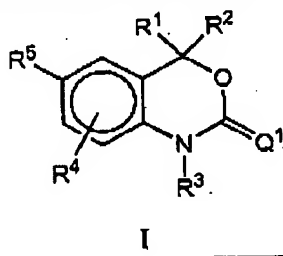
or a pharmaceutically acceptable salt, tautomer, metabolite, or prodrug of formula I or formula II, wherein said regimen comprises:

(a) delivering said compound of formula I or formula II and an estrogen for the first 21 days of a 28 day regimen; and

(b) delivering said selective estrogen receptor modulator alone from days 22 to 24 of said 28 day regimen for 1 to 4 days.

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39(Currently Amended). ~~The method~~ A contraceptive regimen comprising the periodic and discontinuous delivery of a compound of formula I or II and a pharmaceutically effective amount of one or more of a selective estrogen receptor modulator to a female of child-bearing age, wherein formula I is: according to claim 29



wherein:

R<sup>1</sup> and R<sup>2</sup> are independent substituents selected from the group consisting of H, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>2</sub> to C<sub>6</sub> alkenyl, substituted C<sub>2</sub> to C<sub>6</sub> alkenyl, C<sub>2</sub> to C<sub>6</sub> alkynyl, substituted C<sub>2</sub> to C<sub>6</sub> alkynyl, C<sub>3</sub> to C<sub>8</sub> cycloalkyl, substituted C<sub>3</sub> to C<sub>8</sub> cycloalkyl, carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, COR<sup>A</sup>, and NR<sup>B</sup>COR<sup>A</sup>.

or R<sup>1</sup> and R<sup>2</sup> are fused to form a ring selected from the group consisting of a), b) and c), wherein said ring is optionally substituted by from 1 to 3 substituents selected from the group consisting of H and C<sub>1</sub> to C<sub>3</sub> alkyl:

- a) a carbon-based 3 to 8 membered saturated spirocyclic ring;
- b) a carbon-based 3 to 8 membered spirocyclic ring having one or more carbon-carbon double bonds; and
- c) a 3 to 8 membered spirocyclic ring having in its backbone one to three heteroatoms selected from the group consisting of O, S and N;

R<sup>A</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, substituted C<sub>1</sub> to C<sub>3</sub> alkyl, aryl, substituted aryl, C<sub>1</sub> to C<sub>3</sub> alkoxy, substituted C<sub>1</sub> to C<sub>3</sub> alkoxy, amino, C<sub>1</sub> to C<sub>3</sub> aminoalkyl, and substituted C<sub>1</sub> to C<sub>3</sub> aminoalkyl;

R<sup>B</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, and substituted C<sub>1</sub> to C<sub>3</sub> alkyl;

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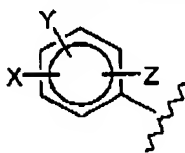
$R^3$  is selected from the group consisting of H, OH,  $NH_2$ ,  $C_1$  to  $C_6$  alkyl, substituted  $C_1$  to  $C_6$  alkyl,  $C_3$  to  $C_6$  alkenyl, substituted  $C_3$  to  $C_6$  alkenyl, alkynyl, substituted alkynyl, and  $COR^C$ ;

$R^C$  is selected from the group consisting of H,  $C_1$  to  $C_4$  alkyl, substituted  $C_1$  to  $C_4$  alkyl, aryl, substituted aryl,  $C_1$  to  $C_4$  alkoxy, substituted  $C_1$  to  $C_4$  alkoxy,  $C_1$  to  $C_4$  aminoalkyl, and substituted  $C_1$  to  $C_4$  aminoalkyl;

$R^4$  is selected from the group consisting of H, halogen, CN,  $NO_2$ ,  $C_1$  to  $C_6$  alkyl, substituted  $C_1$  to  $C_6$  alkyl,  $C_1$  to  $C_6$  alkoxy, substituted  $C_1$  to  $C_6$  alkoxy,  $C_1$  to  $C_6$  aminoalkyl, and substituted  $C_1$  to  $C_6$  aminoalkyl;

$R^5$  is selected from the group consisting of (i) and (ii):

(i) a substituted benzene ring having the structure:



X is selected from the group consisting of halogen, CN,  $C_1$  to  $C_3$  alkyl, substituted  $C_1$  to  $C_3$  alkyl,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_3$  thioalkyl, substituted  $C_1$  to  $C_3$  thioalkyl,  $C_1$  to  $C_3$  aminoalkyl, substituted  $C_1$  to  $C_3$  aminoalkyl,  $NO_2$ ,  $C_1$  to  $C_3$  perfluoroalkyl, substituted  $C_1$  to  $C_3$  perfluoroalkyl, 5 or 6 membered carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted 5 or 6 membered carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms,  $COR^D$ ,  $OCOR^D$ , and  $NR^E COR^D$ ;

$R^D$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, substituted  $C_1$  to  $C_3$  alkyl, aryl, substituted aryl,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_3$  aminoalkyl, and substituted  $C_1$  to  $C_3$  aminoalkyl;

$R^E$  is selected from the group consisting of H,  $C_1$  to  $C_3$  alkyl, and substituted  $C_1$  to  $C_3$  alkyl;

Y and Z are independent substituents selected from the group consisting of H, halogen, CN,  $NO_2$ ,  $C_1$  to  $C_3$  alkoxy, substituted  $C_1$  to  $C_3$  alkoxy,  $C_1$  to  $C_4$  alkyl, substituted  $C_1$  to  $C_4$  alkyl,  $C_1$  to  $C_3$  thioalkyl, and substituted  $C_1$  to  $C_3$  thioalkyl; and

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(ii) a five or six membered carbon-based heterocyclic ring having in its backbone 1, 2, or 3 heteroatoms selected from the group consisting of O, S, SO, SO<sub>2</sub>, and NR<sup>6</sup> and having one or two independent substituents selected from the group consisting of H, halogen, CN, NO<sub>2</sub>, C<sub>1</sub> to C<sub>4</sub> alkyl, substituted C<sub>1</sub> to C<sub>4</sub> alkyl, C<sub>1</sub> to C<sub>3</sub> alkoxy, substituted C<sub>1</sub> to C<sub>3</sub> alkoxy, C<sub>1</sub> to C<sub>3</sub> aminoalkyl, substituted C<sub>1</sub> to C<sub>3</sub> aminoalkyl, C<sub>1</sub> to C<sub>3</sub> perfluoroalkyl, substituted C<sub>1</sub> to C<sub>3</sub> perfluoroalkyl, 5 or 6 membered carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted 5 or 6 membered carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, C<sub>1</sub> to C<sub>3</sub> thioalkyl, substituted C<sub>1</sub> to C<sub>3</sub> thioalkyl, COR<sup>F</sup>, and NR<sup>G</sup>COR<sup>F</sup>;

R<sup>F</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, substituted C<sub>1</sub> to C<sub>3</sub> alkyl, aryl, substituted aryl, C<sub>1</sub> to C<sub>3</sub> alkoxy, substituted C<sub>1</sub> to C<sub>3</sub> alkoxy, C<sub>1</sub> to C<sub>3</sub> aminoalkyl, and substituted C<sub>1</sub> to C<sub>3</sub> aminoalkyl;

R<sup>G</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, and substituted C<sub>1</sub> to C<sub>3</sub> alkyl;

R<sup>6</sup> is selected from the group consisting of H, C<sub>1</sub> to C<sub>3</sub> alkyl, and C<sub>1</sub> to C<sub>4</sub> CO<sub>2</sub>alkyl;

Q<sup>1</sup> is selected from the group consisting of S, NR<sup>7</sup>, and CR<sup>8</sup>R<sup>9</sup>;

R<sup>7</sup> is selected from the group consisting of CN, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>3</sub> to C<sub>8</sub> cycloalkyl, substituted C<sub>3</sub> to C<sub>8</sub> cycloalkyl, aryl, substituted aryl, carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, SO<sub>2</sub>CF<sub>3</sub>, OR<sup>11</sup>, and NR<sup>11</sup>R<sup>12</sup>;

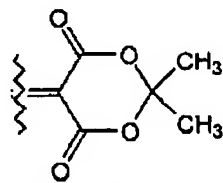
R<sup>8</sup> and R<sup>9</sup> are independent substituents selected from the group consisting of H, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, C<sub>3</sub> to C<sub>8</sub> cycloalkyl, substituted C<sub>3</sub> to C<sub>8</sub> cycloalkyl, aryl, substituted aryl, carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, NO<sub>2</sub>, CN, and CO<sub>2</sub>R<sup>10</sup>;

R<sup>10</sup> is selected from the group consisting of C<sub>1</sub> to C<sub>3</sub> alkyl and substituted C<sub>1</sub> to C<sub>3</sub> alkyl;



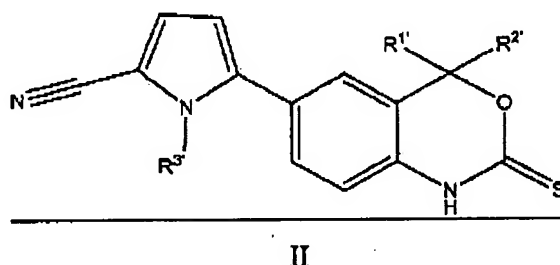
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or CR<sup>8</sup>R<sup>9</sup> comprise a six membered ring having the structure:



R<sup>11</sup> and R<sup>12</sup> are independently selected from the group consisting of H, C<sub>1</sub> to C<sub>6</sub> alkyl, substituted C<sub>1</sub> to C<sub>6</sub> alkyl, aryl, substituted aryl, carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, substituted carbon-based heterocyclic ring having in its backbone 1 to 3 heteroatoms, acyl, substituted acyl, sulfonyl, and substituted sulfonyl;

and formula II is:



II

wherein:

R<sup>1'</sup> is selected from the group consisting of methyl, ethyl, and trifluoromethyl;

R<sup>2'</sup> is selected from the group consisting of methyl, ethyl, and trifluoromethyl; or

R<sup>1'</sup> and R<sup>2'</sup> are joined to form a spirocyclic ring containing 3 to 7 carbon atoms;

and

R<sup>3'</sup> is C<sub>1</sub> to C<sub>4</sub> alkyl;

or a pharmaceutically acceptable salt, tautomer, metabolite, or prodrug of formula I or formula II, wherein said regimen comprises 28 days and the steps of:

(a) a first phase of the compound of formula I or formula II and said selective estrogen receptor modulator to be administered on for the first days 14 to 24 days of said regimen;

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(b) a second phase of said selective estrogen receptor modulator to be administered ~~on days for 1 to 11 days~~ of said regimen beginning on any day between days 14 and 24; and

(c) a third phase of an orally and pharmaceutically acceptable placebo for days 1 to 10 ~~days of said regimen or a third phase in which component phase (a) or (b) is not administered for days 1 to 10 days of said regimen.~~

40(Currently Amended). The ~~method~~ regimen according to claim 39, wherein:

- (a) said first phase comprises 14 days;
- (b) said second phase comprises 7 days; and
- (c) said third phase comprises 7 days.